

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1.-13. (Canceled)

14. (Currently Amended) An isolated polypeptide up to 12 amino acids in length comprising an amino acid sequence ~~at least about 60% identical to the amino acid sequence set forth in~~ selected from the group consisting of SEQ ID NO: 1-2 or 1 and 14-19.

15. (Currently Amended) ~~An~~ The isolated polypeptide of claim 14, wherein the polypeptide comprises the ~~comprising an amino acid sequence at least about 60% identical to the sequence set forth in~~ of SEQ ID NO: 1.

16. (Currently Amended) The isolated polypeptide of claim 14, wherein the polypeptide comprises ~~an~~ the amino acid sequence ~~at least about 60% identical to the amino acid sequence~~ of SEQ ID NO: 19. 1.

17. (Original) The isolated polypeptide of claim 14, wherein the polypeptide binds to HLA molecules with a high avidity.

18. (Original) The isolated polypeptide of claim 14, wherein the polypeptide has a higher association constant (K_a) for the HLA than a native polypeptide.

19. (Original) The isolated polypeptide of claim 17, wherein the polypeptide has a lower dissociation constant (K_d) for the HLA than a native polypeptide.

20. (Original) The isolated polypeptide of claim 17, wherein the polypeptide is derived from a mucin tumor antigen.

21. (Original) The isolated polypeptide of claim 17, wherein the polypeptide is derived from a non-variable number of tandem repeats region of MUC-1.

22. (Original) The isolated polypeptide of claim 17, wherein the polypeptide induces an immune response.

23. (Original) The isolated polypeptide of claim 17, wherein the immune response is a cellular immune response.

24. (Original) The isolated polypeptide of claim 23, wherein the cellular immune response is a cytotoxic T cell response.

25. (Original) The isolated polypeptide of claim 23, wherein the cellular immune response is a T helper cell response.

26. (Original) The isolated polypeptide of claim 23, wherein the cellular immune response is a B cell immune response.

27. (Currently Amended) ~~An isolated agonist~~ The isolated polypeptide up to 12 amino acids in length comprising an amino acid sequence which is at least about 60% identical to of claim 14, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 14, 1-2 or 14-19.

28. (Currently Amended) ~~An isolated agonist~~ The isolated polypeptide up to 12 amino acids in length comprising an amino acid sequence which is at least about 80% identical to of claim 14, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 15, 1-2 or 14-19.

29. (Currently Amended) ~~An isolated agonist~~ The isolated polypeptide up to 12 amino acids in length comprising an amino acid sequence which is at least about 90% identical to of claim 14, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 16, 1-2 or 14-19.

30.-45. (Canceled)

46. (Withdrawn and Currently Amended) A method for treating a subject suffering from or susceptible to a MUC-1 tumor comprising administering to a subject at least one polypeptide of claim 14, such that the subject is treated. ~~any one or more of the peptides identified by SEQ ID NO: 1 through 19.~~

47. (Withdrawn and Currently Amended) The method of claim 46, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 1. ~~the subject is treated by~~

~~administering a peptide which is at least about 60% identical to any one or more of the amino acid sequences identified by SEQ ID NO: 1 through 19.~~

48. (Withdrawn and Currently Amended) The method of claim 46, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 19. ~~subject is treated by administering a peptide which is at least about 80% identical to any one or more of the amino acid sequences identified by SEQ ID NO: 1 through 19.~~

49. (Withdrawn and Currently Amended) The method of claim 46, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 14. ~~subject is treated by administering a peptide which is at least about 90% identical to any one or more of the amino acid sequences identified by SEQ ID NO: 1 through 19.~~

50. (Withdrawn and Currently Amended) The method of claim 46, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 15. ~~subject is treated by administering a peptide which is at least about 99.9% identical to any one or more of the amino acid sequences identified by SEQ ID NO: 1 through 19.~~

51. (Withdrawn and Currently Amended) A method for treating a subject suffering from or susceptible to a MUC-1 tumor comprising:

isolating dendritic cells from a subject suffering from cancer;

treating the dendritic cells with at least one polypeptide of claim 14; ~~one or more of polypeptides identified by SEQ ID NO: 1 through 19;~~ and,

administering the treated dendritic cells to the subject, such that the subject is treated. ~~subject.~~

52. (Withdrawn and Currently Amended) The method of claim 51, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 1. ~~one or more polypeptides at least about 60% identical to any one of the amino acid sequences identified by SEQ ID NO: 1 through 19.~~

53. (Withdrawn and Currently Amended) The method of claim 51, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID

~~NO: 19. one or more polypeptides at least about 80% identical to any one of the amino acid sequences identified by SEQ ID NO: 1 through 19.~~

54. (Withdrawn and Currently Amended) The method of claim 51, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 14. ~~one or more polypeptides at least about 90% identical to any one of the amino acid sequences identified by SEQ ID NO: 1 through 19.~~

55. (Withdrawn and Currently Amended) The method of claim 51, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 15. ~~one or more polypeptides at least about 99.9% identical to any one of the amino acid sequences identified by SEQ ID NO: 1 through 19.~~

56. (Withdrawn and Currently Amended) A method for generating an immune response to a weakly immunogenic antigen comprising administering to a subject a at least one polypeptide of claim 14 ~~with a high avidity for HLA~~ fused to a weak immunogen.

57. (Withdrawn) The method of claim 56, wherein the weak immunogen is a differentiation antigen.

58. (Withdrawn) The method of claim 56, wherein the weak immunogen is a tumor antigen.

59. (Withdrawn and Currently Amended) The method of claim 56, wherein the polypeptide comprises the HLA binding fragment of the amino acid sequence of SEQ ID NO: 19.

60. (Withdrawn and Currently Amended) The method of claim 59, wherein the HLA binding fragment of SEQ ID NO: 19 polypeptide is fused to a carcinoembryonic antigen.

61. (Withdrawn and Currently Amended) The method of claim 59, wherein the HLA binding fragment of SEQ ID NO: 19 polypeptide is fused to a viral antigen.

62. (Withdrawn and Currently Amended) The method of claim 59, wherein the HLA binding fragment of SEQ ID NO: 19 polypeptide is fused to a self-antigen.

63.-66. (Canceled)

67. (Withdrawn and Currently Amended) A method for treating a subject suffering from or susceptible to a MUC-1 tumor comprising:

isolating dendritic cells from a subject suffering from cancer;

treating the dendritic cells with at least one polypeptide of claim 14; one or more of polypeptides identified by SEQ ID NO: 1 through 19;

activating peripheral blood mononuclear cells with the treated dendritic cells;
administering the activated PBMC cells to the subject.

68. (Withdrawn and Currently Amended) The method of claim 67, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 1. one or more polypeptides at least about 60% identical to any one of the amino acid sequences identified by SEQ ID NO: 1 through 19.

69. (Withdrawn and Currently Amended) The method of claim 67, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 19. one or more polypeptides at least about 80% identical to any one of the amino acid sequences identified by SEQ ID NO: 1 through 19.

70. (Withdrawn and Currently Amended) The method of claim 67, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 14. one or more polypeptides at least about 90% identical to any one of the amino acid sequences identified by SEQ ID NO: 1 through 19.

71. (Withdrawn and Currently Amended) The method of claim 67, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 15. one or more polypeptides at least about 99.9% identical to any one of the amino acid sequences identified by SEQ ID NO: 1 through 19.

72.-78. (Canceled)

79. (New) The isolated polypeptide of claim 14, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 17.

80. (New) The isolated polypeptide of claim 14, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 18.

81. (Withdrawn and New) The method of claim 46, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 16.

82. (Withdrawn and New) The method of claim 46, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 17.

83. (Withdrawn and New) The method of claim 46, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 18.

84. (Withdrawn and New) The method of claim 51, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 16.

85. (Withdrawn and New) The method of claim 51, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 17.

86. (Withdrawn and New) The method of claim 51, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 18.

87. (Withdrawn and New) The method of claim 56, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 1.

88. (Withdrawn and New) The method of claim 56, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 14.

89. (Withdrawn and New) The method of claim 56, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 15.

90. (Withdrawn and New) The method of claim 56, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 16.

91. (Withdrawn and New) The method of claim 56, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 17.

92. (Withdrawn and New) The method of claim 56, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 18.

93. (Withdrawn and New) The method of claim 67, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 16.

94. (Withdrawn and New) The method of claim 67, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 17.

95. (Withdrawn and New) The method of claim 67, wherein dendritic cells are treated with a polypeptide comprising the amino acid sequence of SEQ ID NO: 18.